

# Global Tropics Hazards And Benefits Outlook

12/4/2018

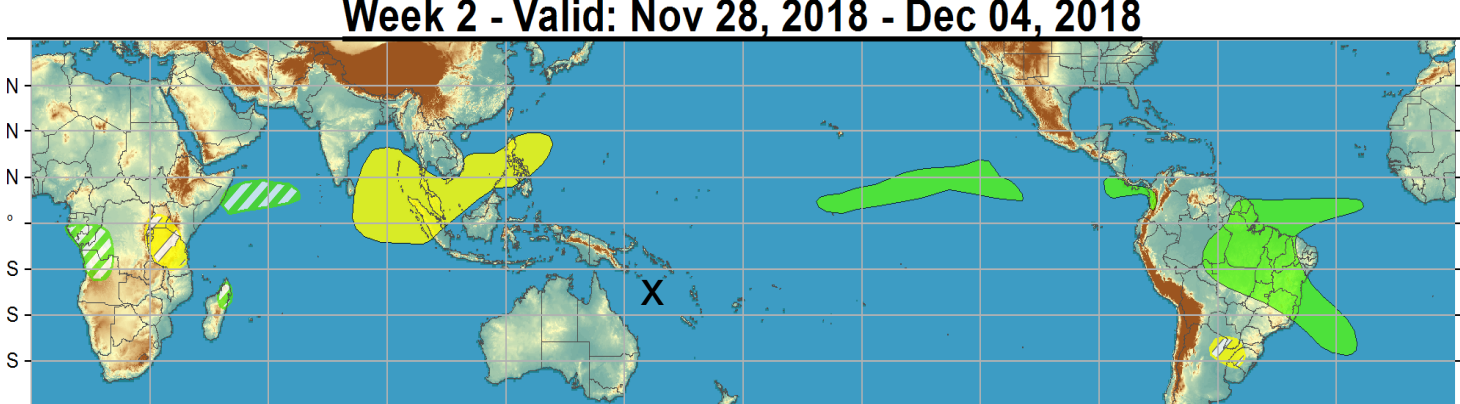
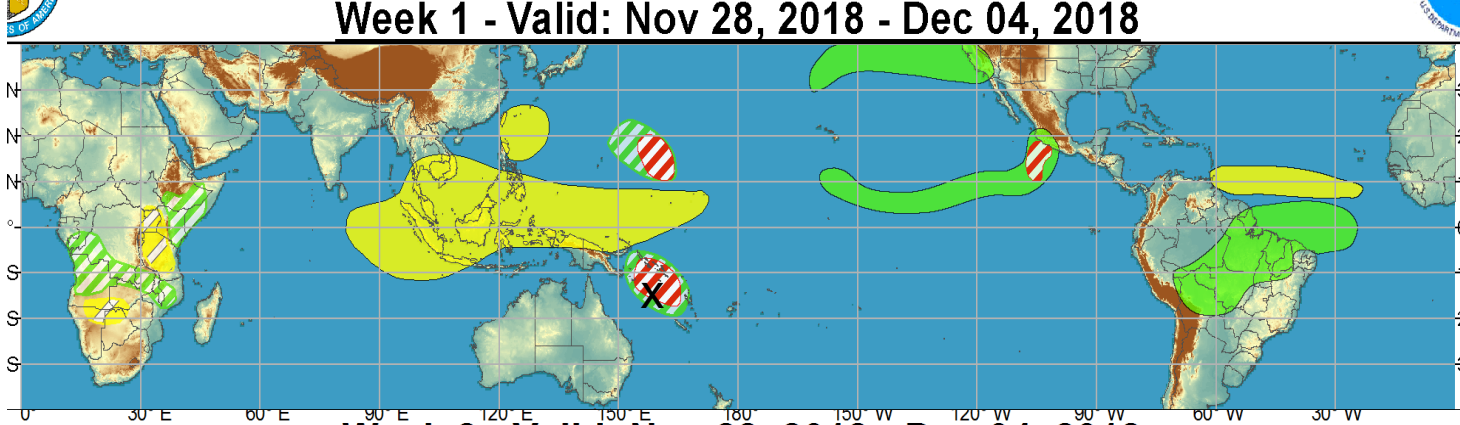
Anthony Artusa

## Outline

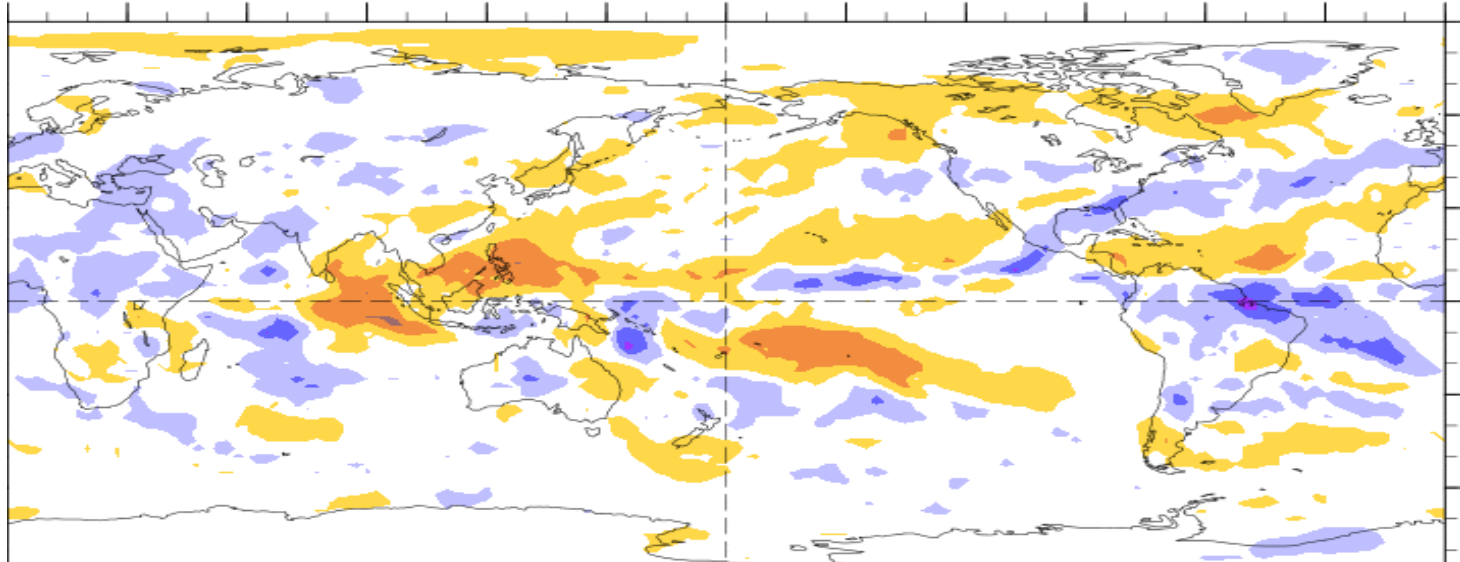
1. Review of Recent Conditions
2. Synopsis of Climate Modes
3. GTH Outlook and Forecast Discussion
4. Connections to U.S. Impacts

# Outlook Review

**TC Owen**  
**(Coral Sea)**



7-Day Average OLR Anomaly 2018/11/26 - 2018/12/02



Cool shading  
More clouds/rain

Warm shading  
Less clouds/rain

# Synopsis of Climate Modes

## **ENSO: (November 8, 2018 Update)**

- ENSO Alert System Status: [El Niño Watch](#)
- El Niño is expected to form and continue through the NH winter 2018-19 (~80% chance) and into spring (55-60% chance).

## **MJO and other subseasonal tropical variability:**

- The MJO remained of moderate strength, and is currently over phase 1 (Atlantic & Africa).
- Dynamical models generally indicate a weakening of the signal during the next two weeks; main problem is predicting extent of eastward propagation.

## **Extratropics:**

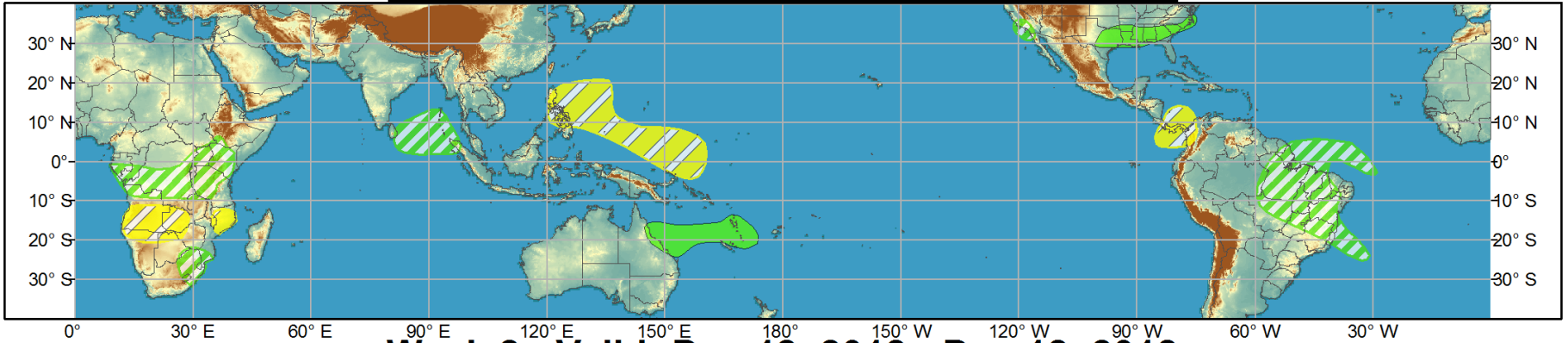
- MJO in phases 1&2 tends to favor colder-than-normal temperatures over east-central CONUS; MJO in phases 3&4 tends to favor warmer-than-normal temperatures in same region (simultaneous teleconnections).



# Global Tropics Hazards and Benefits Outlook - Climate Prediction Center



## Week 1 - Valid: Dec 05, 2018 - Dec 11, 2018



## Week 2 - Valid: Dec 12, 2018 - Dec 18, 2018



**Confidence**  
High Moderate

- Tropical Cyclone Formation** Development of a tropical cyclone (tropical depression - TD, or greater strength).
- Above-average rainfall** Weekly total rainfall in the upper third of the historical range.
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- Above-normal temperatures** 7-day mean temperatures in the upper third of the historical range.
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Produced: 12/04/2018  
Forecaster: Artusa

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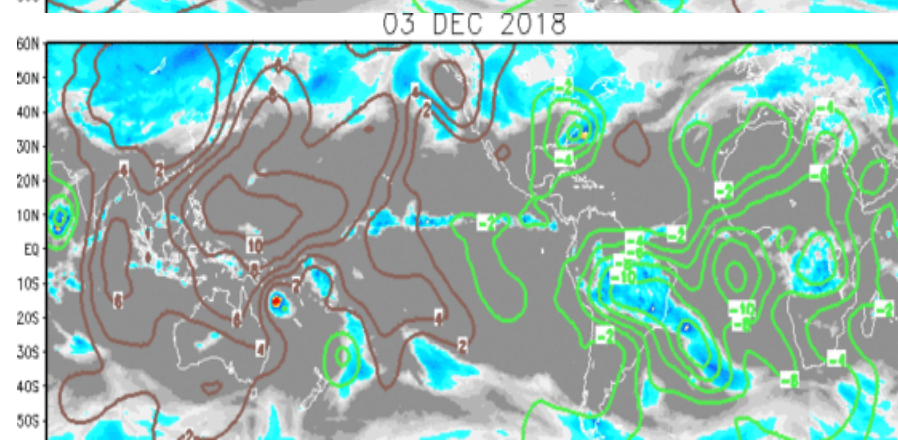
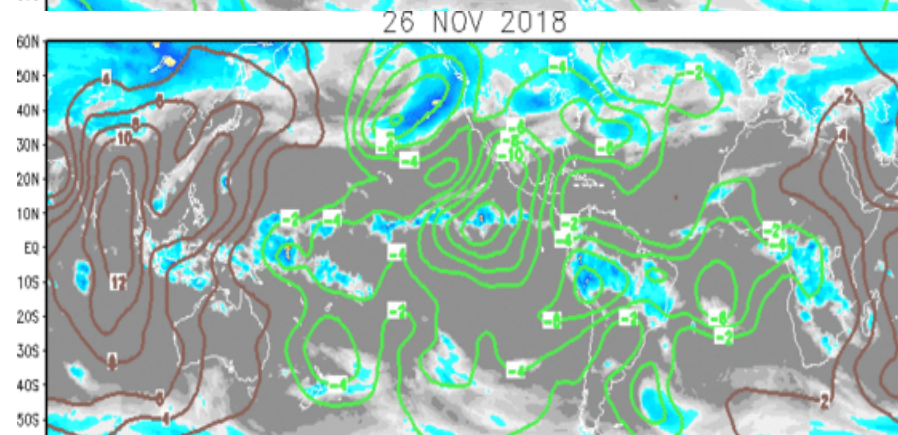
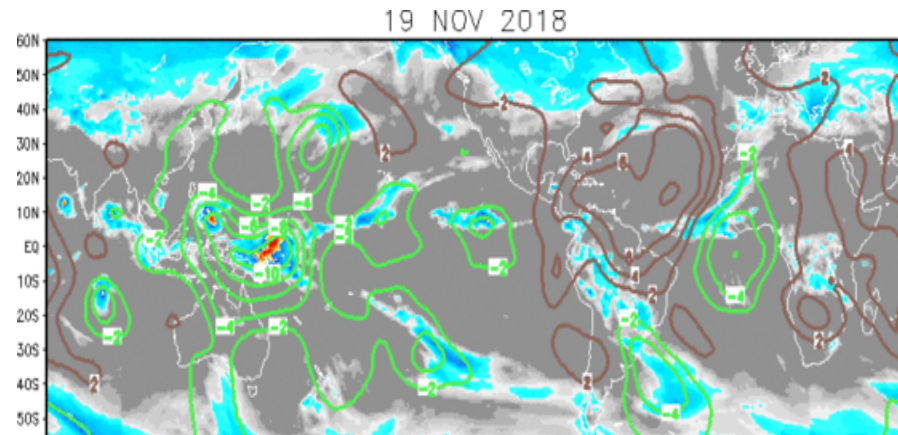
# IR Satellite & 200-hpa Velocity Potential Anomalies

Green: Enhanced Divergence

Brown: Enhanced Convergence

“Noisy” Wave-1 pattern with a moderate MJO projection. Convective “blob” over Maritime Continent tends to anchor MJO & the circulation.

Wave-1 with a moderate MJO projection.

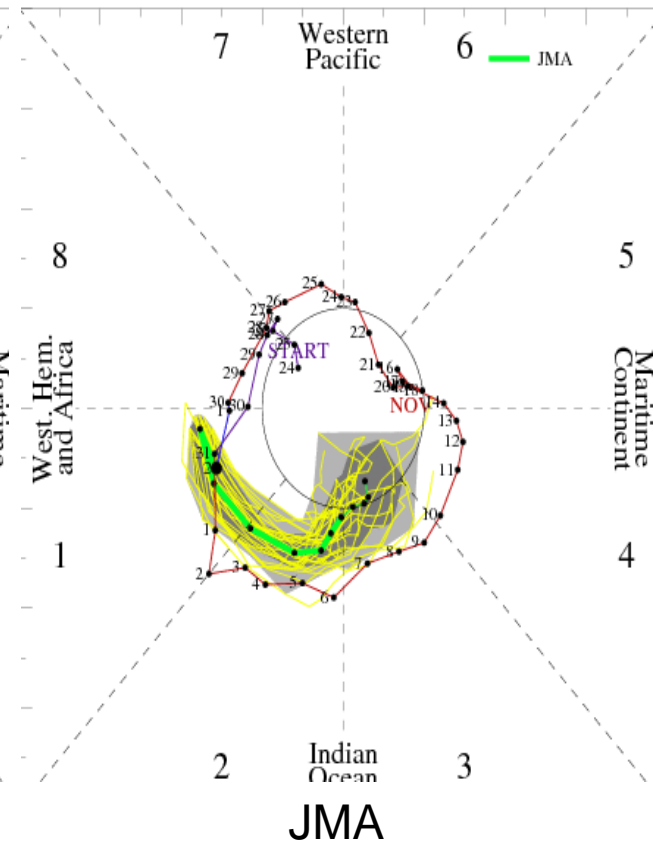
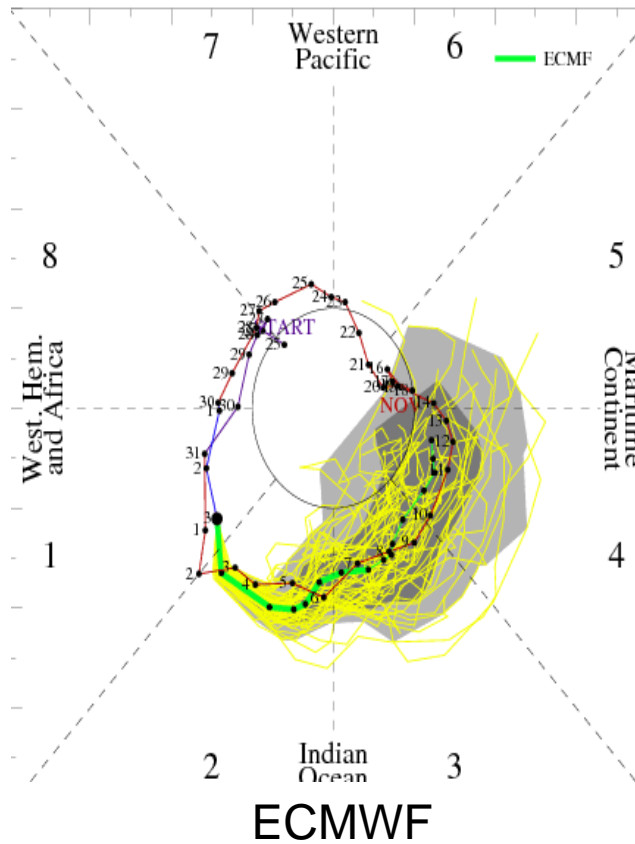
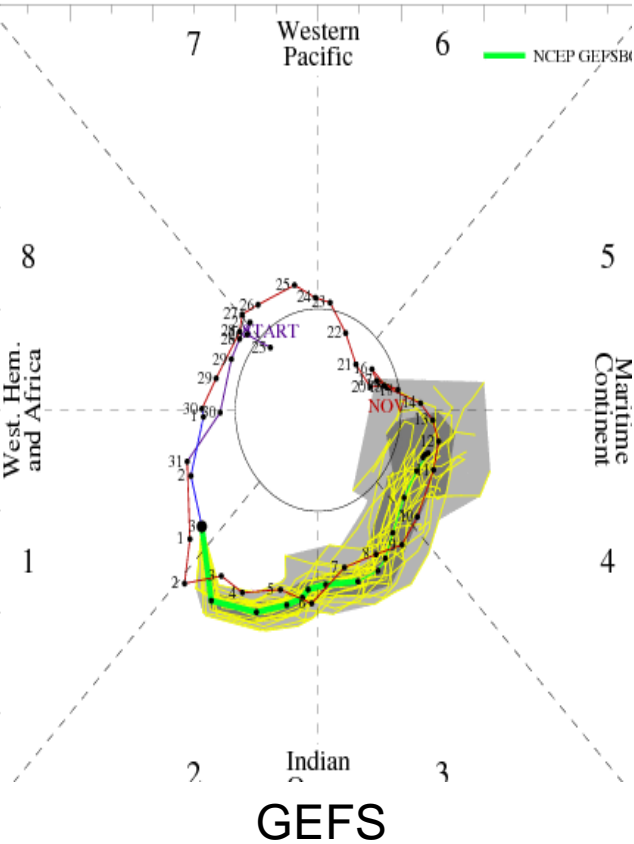


# MJO Observation/Forecast

[RMM1, RMM2] forecast for Dec-04-2018 to Dec-18-2018

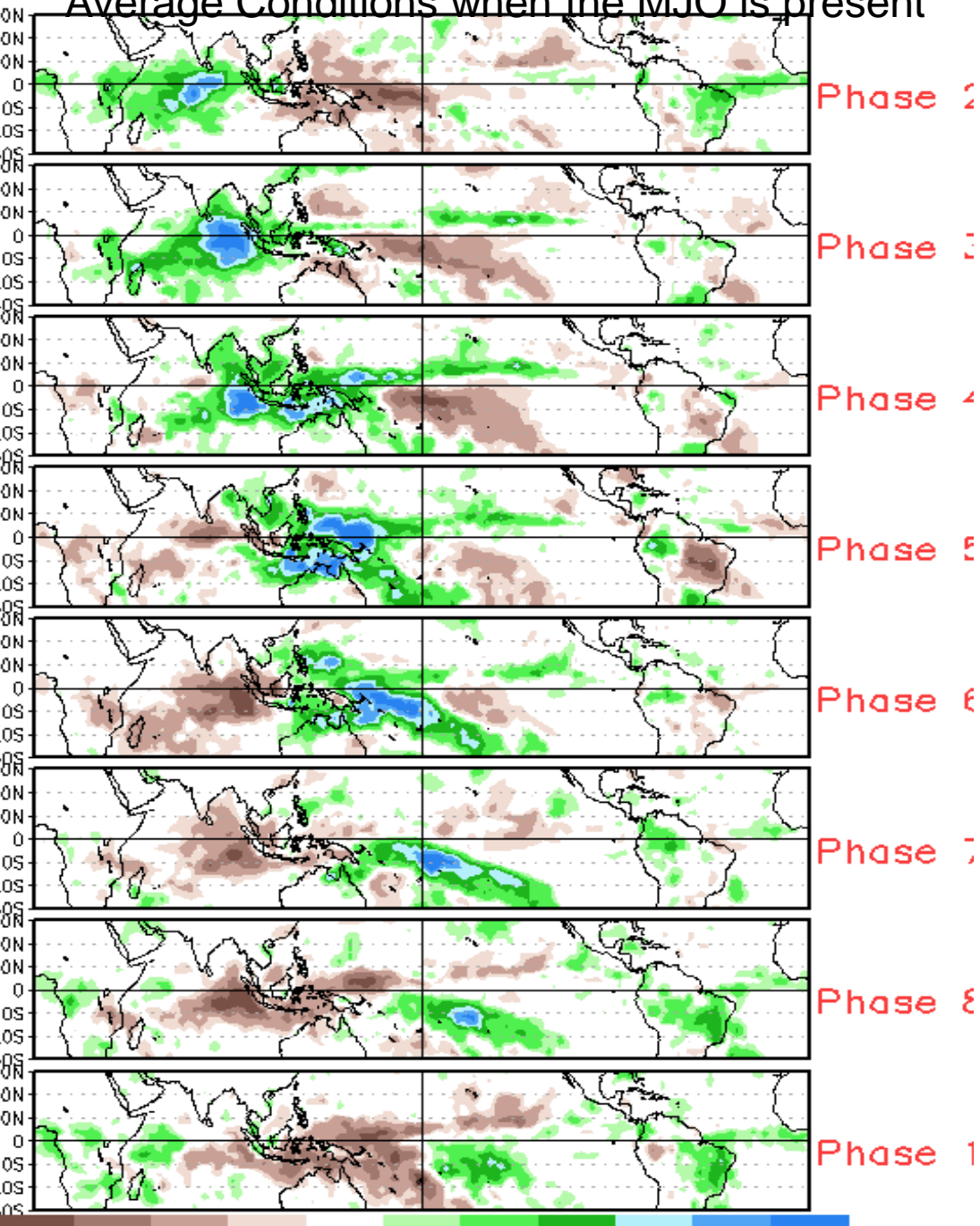
MJO Index Forecast for 04Dec2018-18Dec2018

MJO Index Forecast for 03Dec2018-11Dec2018



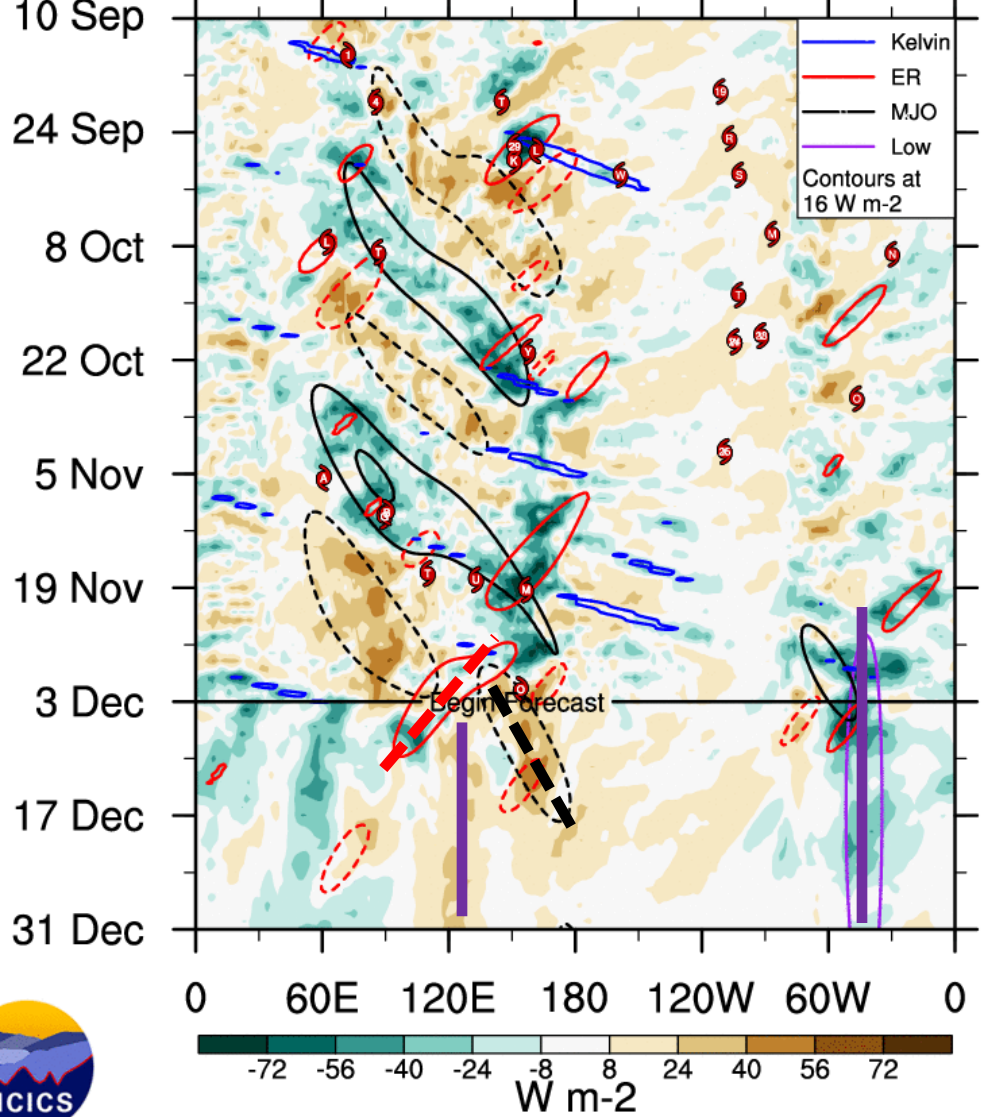
Wheeler-Hendon based analyses of model forecasts indicate propagation to the east to about phase 4 (Maritime Continent) during the 2-week period.

# Average Conditions when the MJO is present



CAVEAT: These panels are representative of robust MJO events.

OLR with CFS forecasts 5S - 5N



**MJO, Rossby wave** having an influence

**Low-frequency pattern** less of an influence



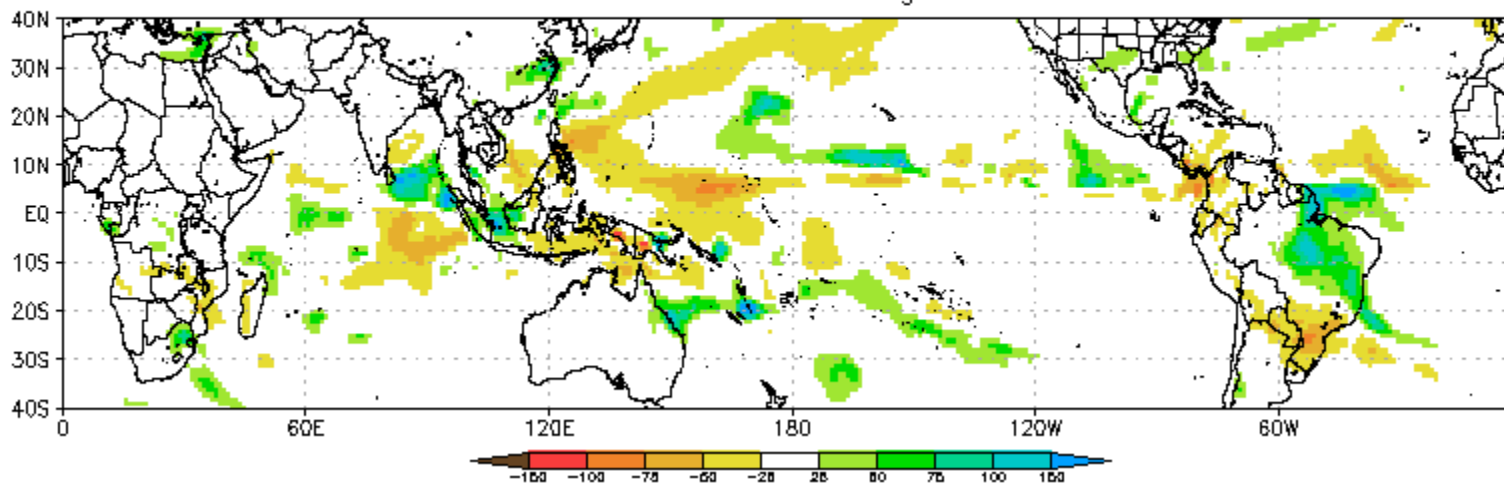
ncics.org/mjo

Tue 2018-12-04 1624 UTC

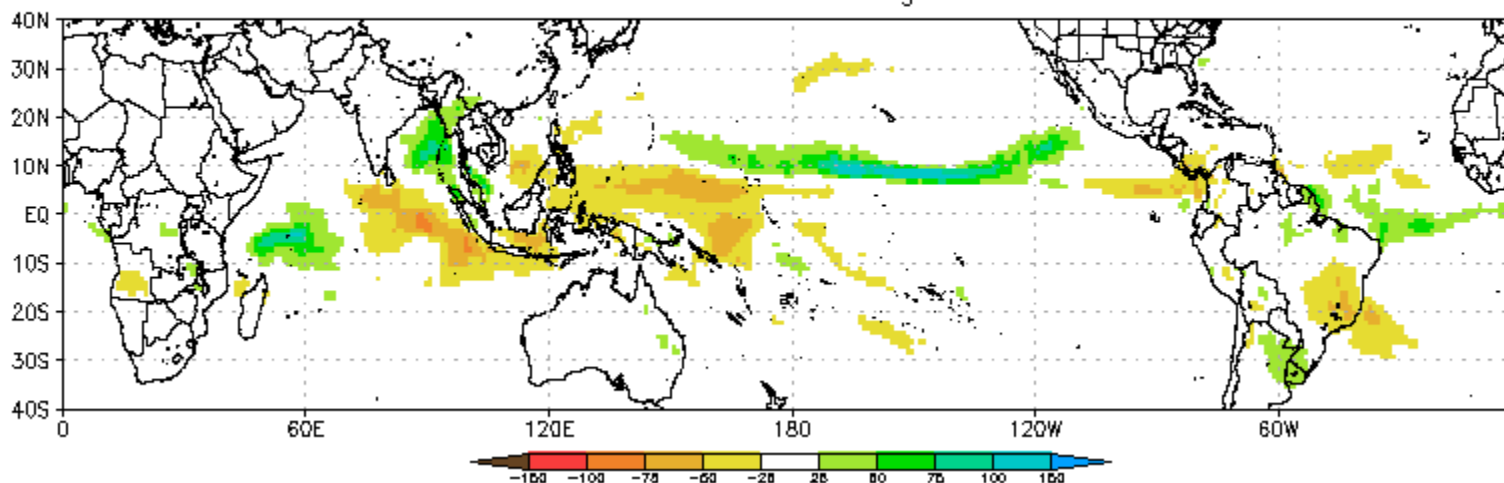
Carl Schreck (cjschrec@ncsu.edu)



CFS Precipitation Anomalies (mm) Issued 03Dec2018  
Week-1 Forecast Ending 11Dec2018



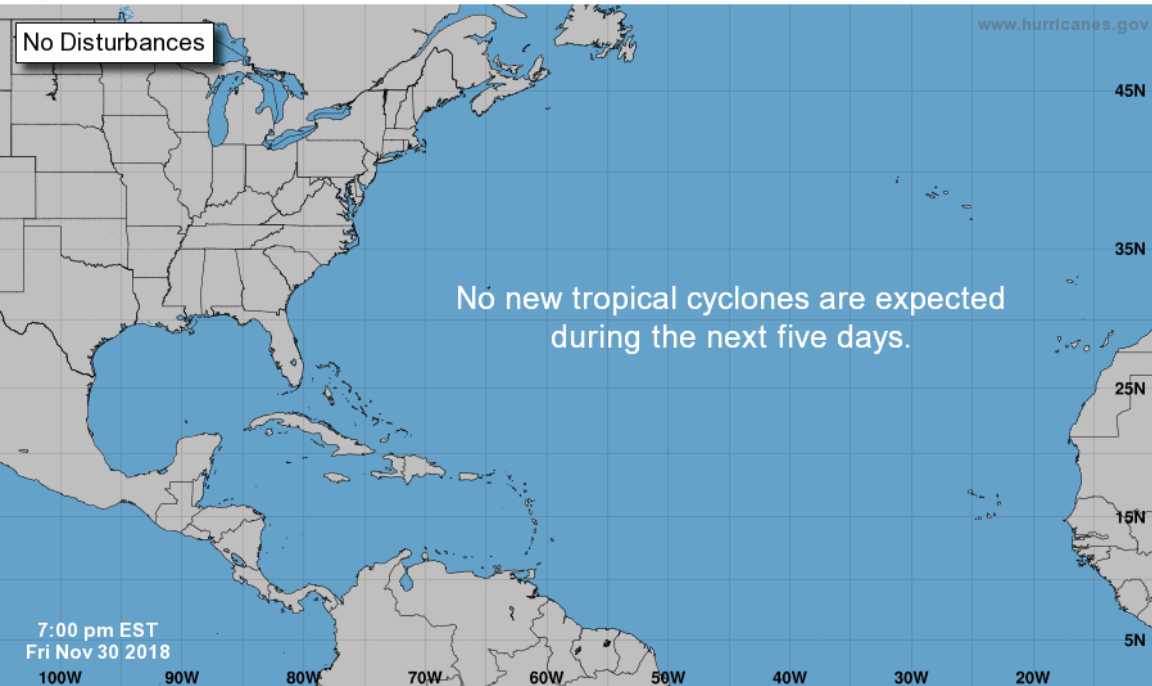
CFS Precipitation Anomalies (mm) Issued 03Dec2018  
Week-2 Forecast Ending 18Dec2018





# Five-Day Graphical Tropical Weather Outlook

National Hurricane Center Miami, Florida



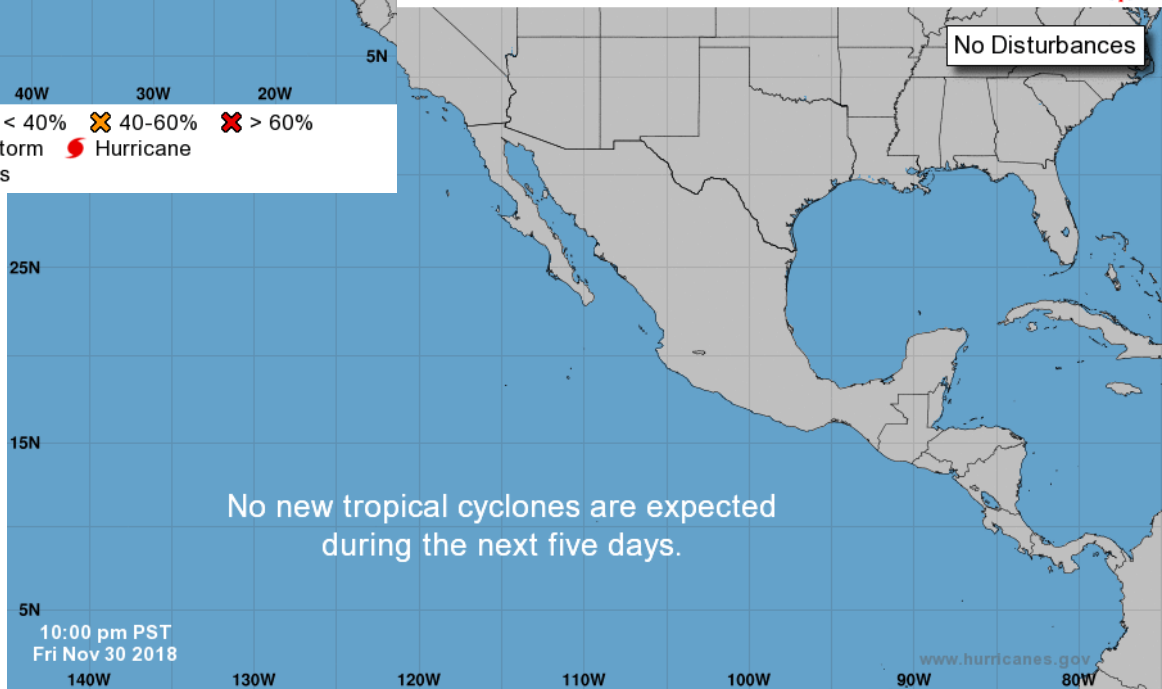
Current Disturbances and Five-Day Cyclone Formation Chance: < 40% 40-60% > 60%

Tropical or Sub-Tropical Cyclone: Depression Storm Hurricane

Post-Tropical Cyclone or Remnants

# Graphical Tropical Weather Outlook

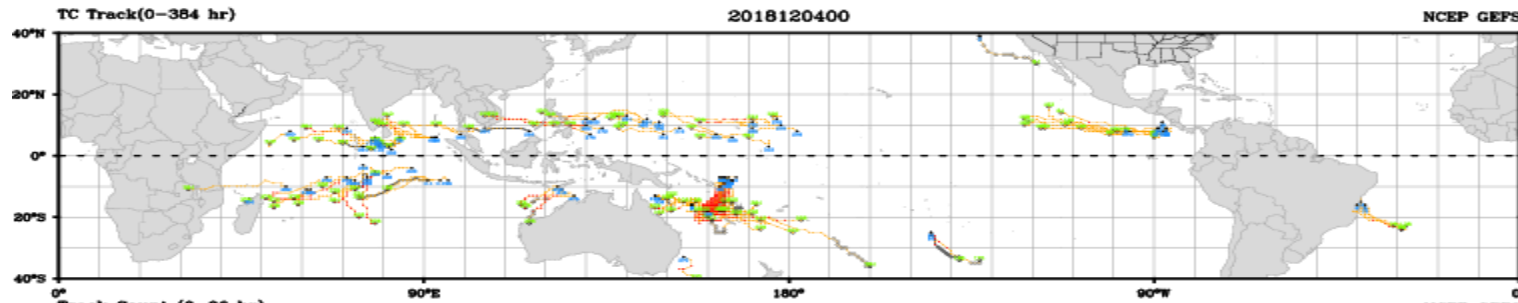
National Hurricane Center Miami, Florida



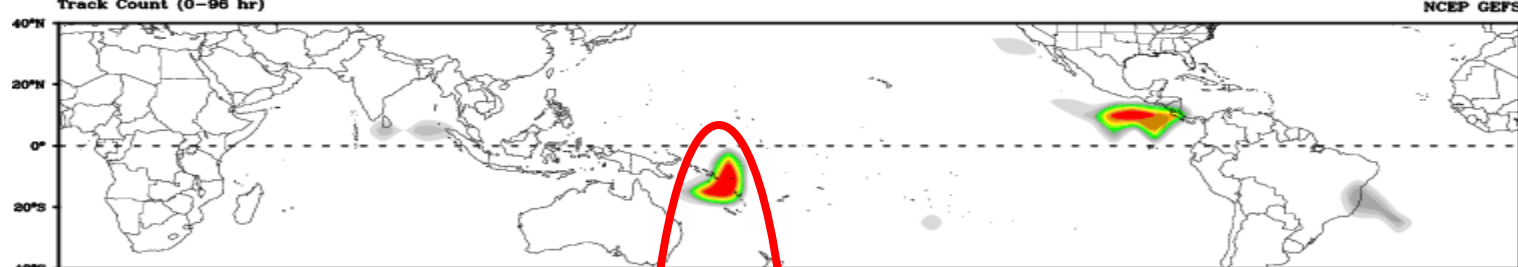
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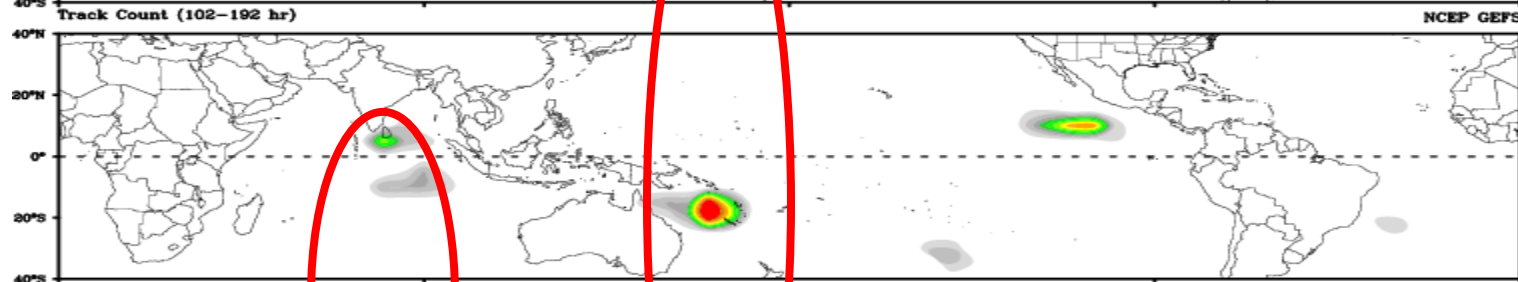
Post-Tropical Cyclone or Remnants



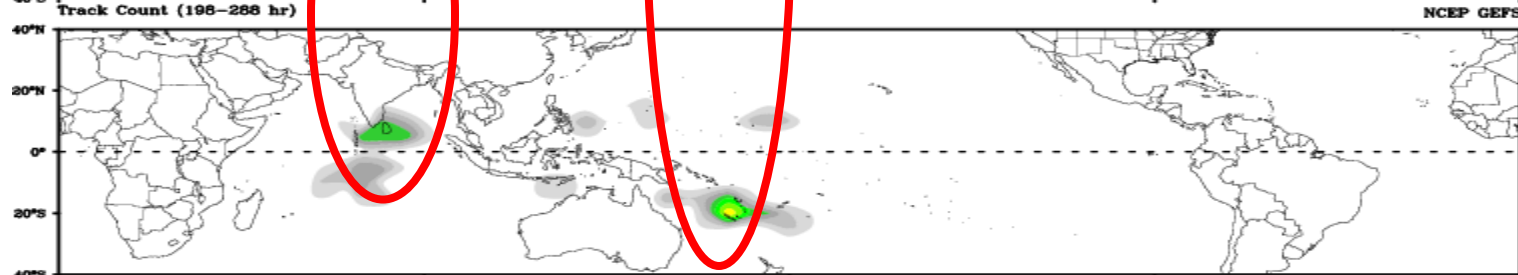
Days 1-4



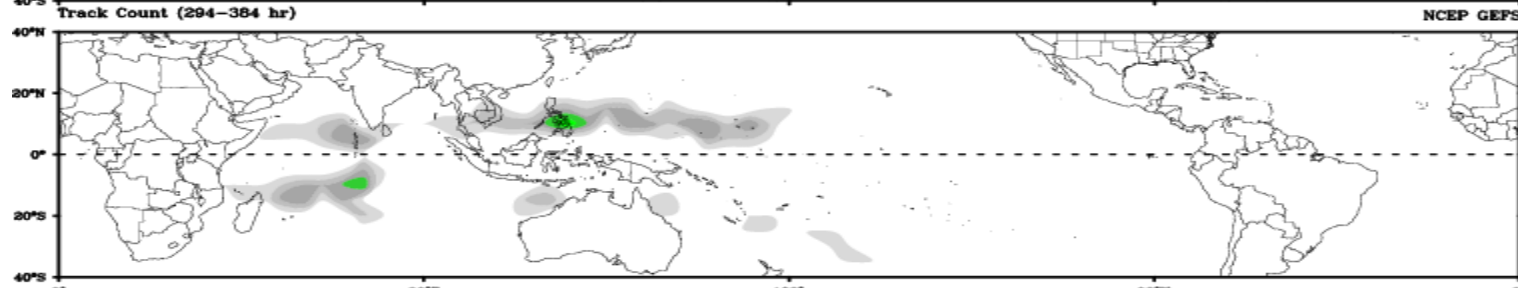
Day 5-8



Day 9-12

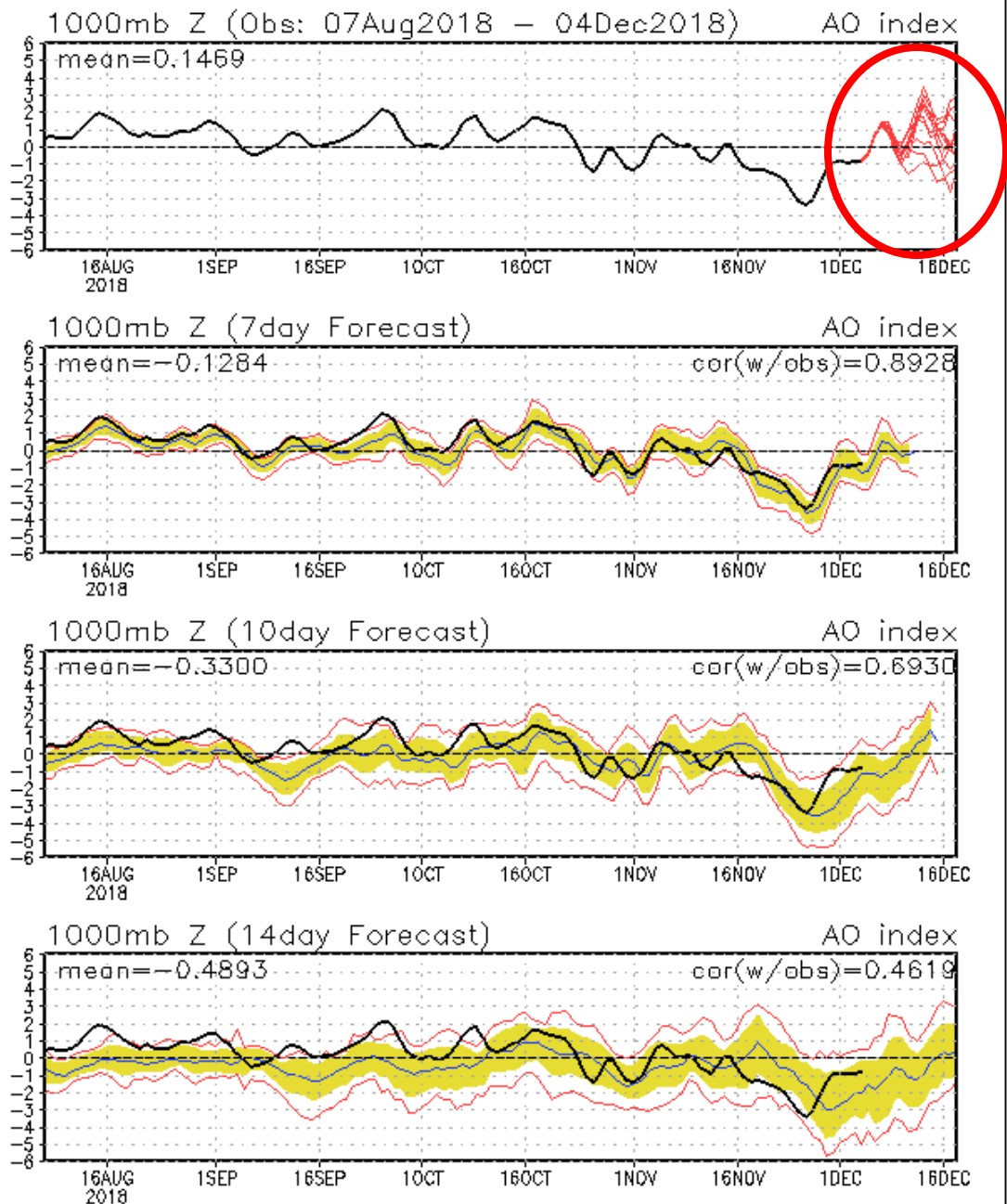


Day 13-15

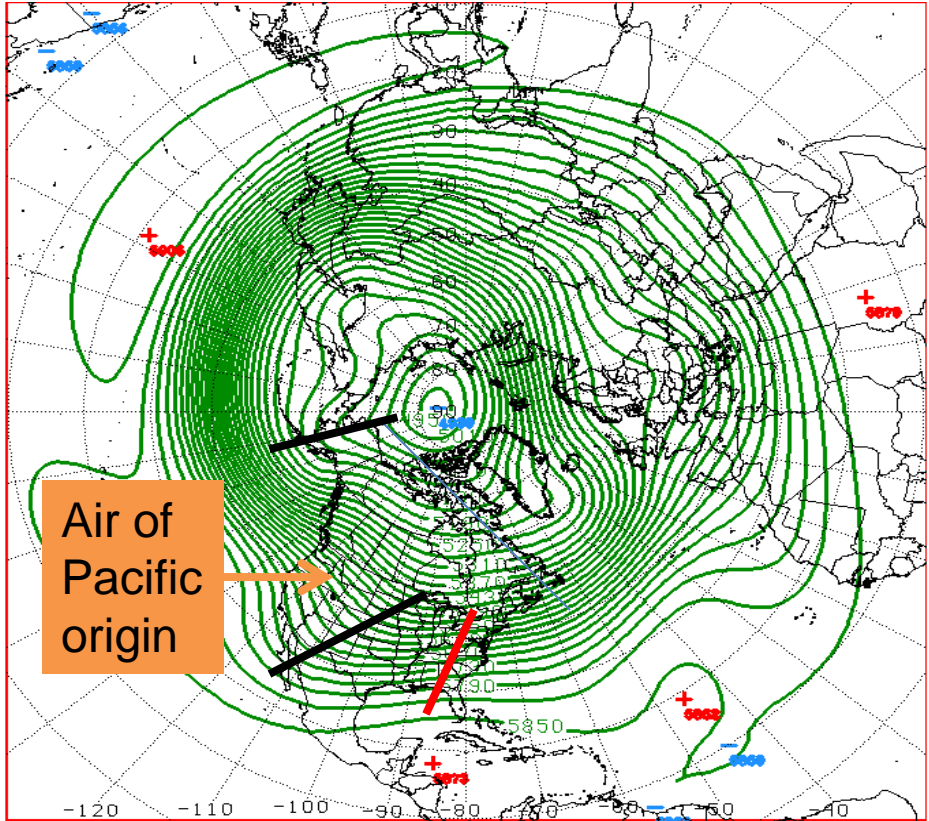


# Connections to U.S. Impacts

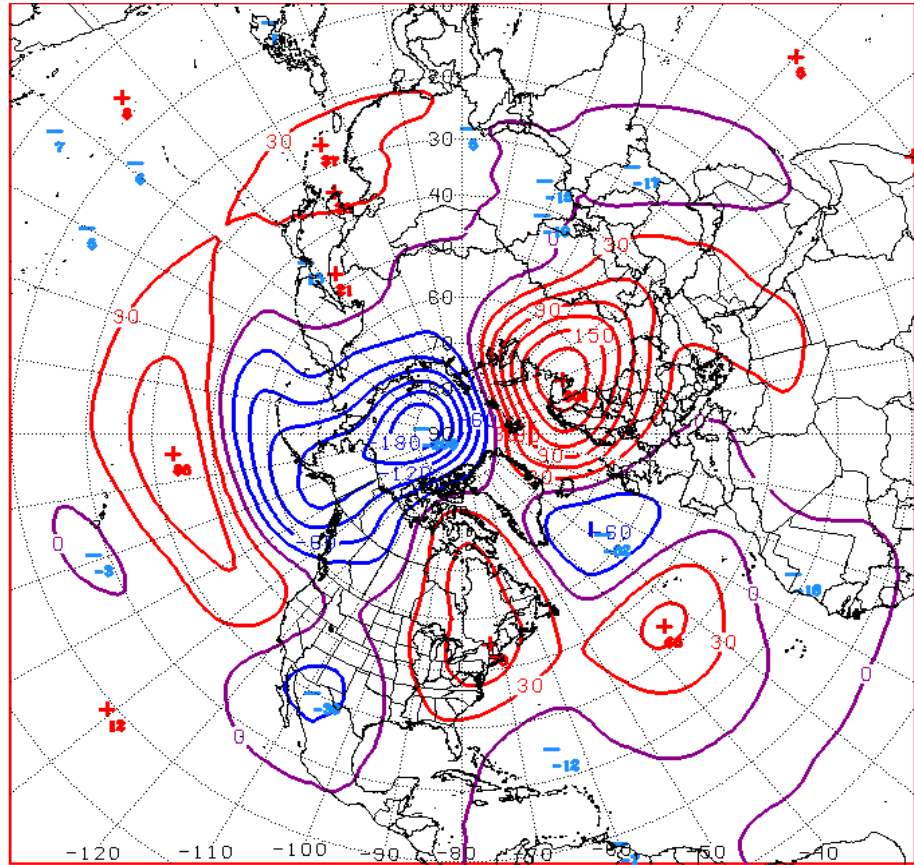
## AO: Observed & ENSM forecasts



# D+11 GFS Superensemble Mean (Dec 4)



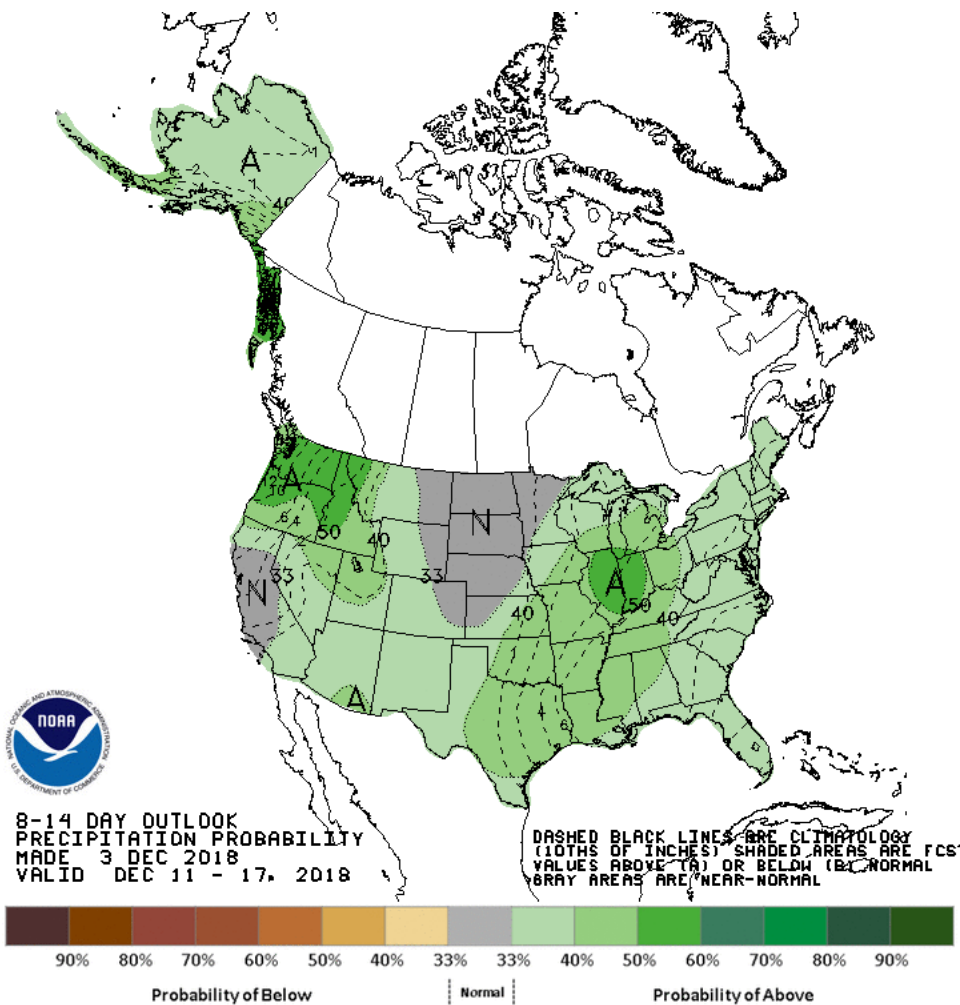
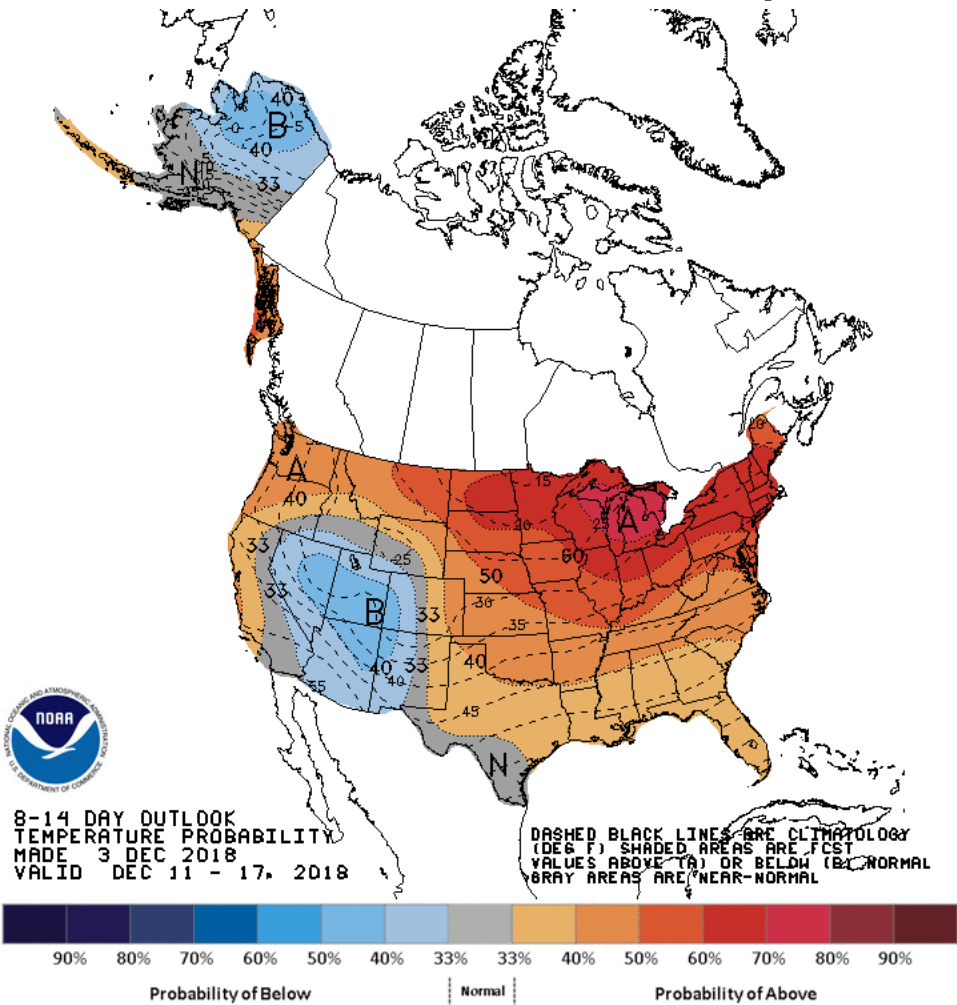
D+11 500 MB HEIGHTS FROM AL2 ENSM  
CPC MAP MADE DEC 04 2018 1300 UTC CNTD DEC 15 2018



D+11 500 MB ANOMALIES FROM AL2 ENSM  
CPC MAP MADE DEC 04 2018 1301 UTC CNTD DEC 15 2018

# Week 2 – Temperature and Precipitation

Dec 3

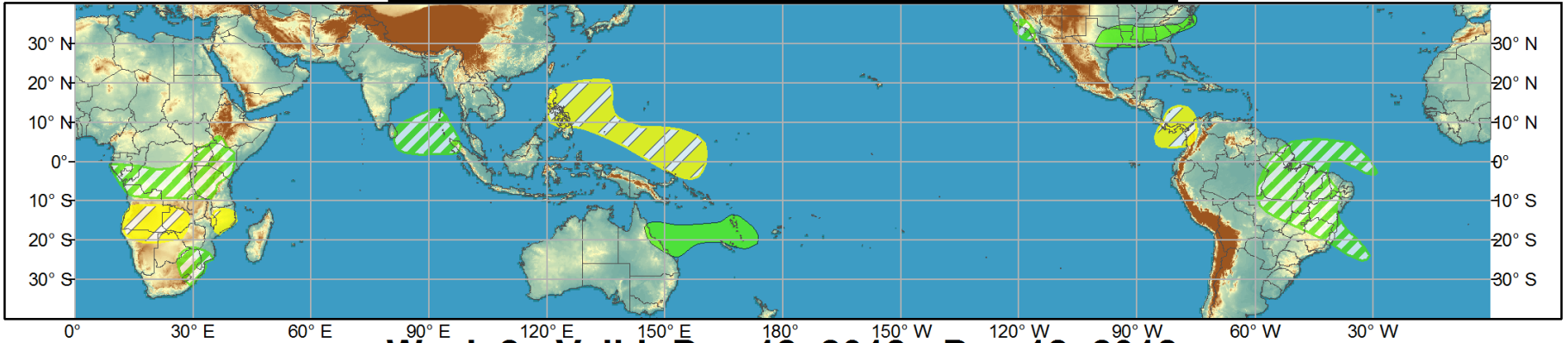




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